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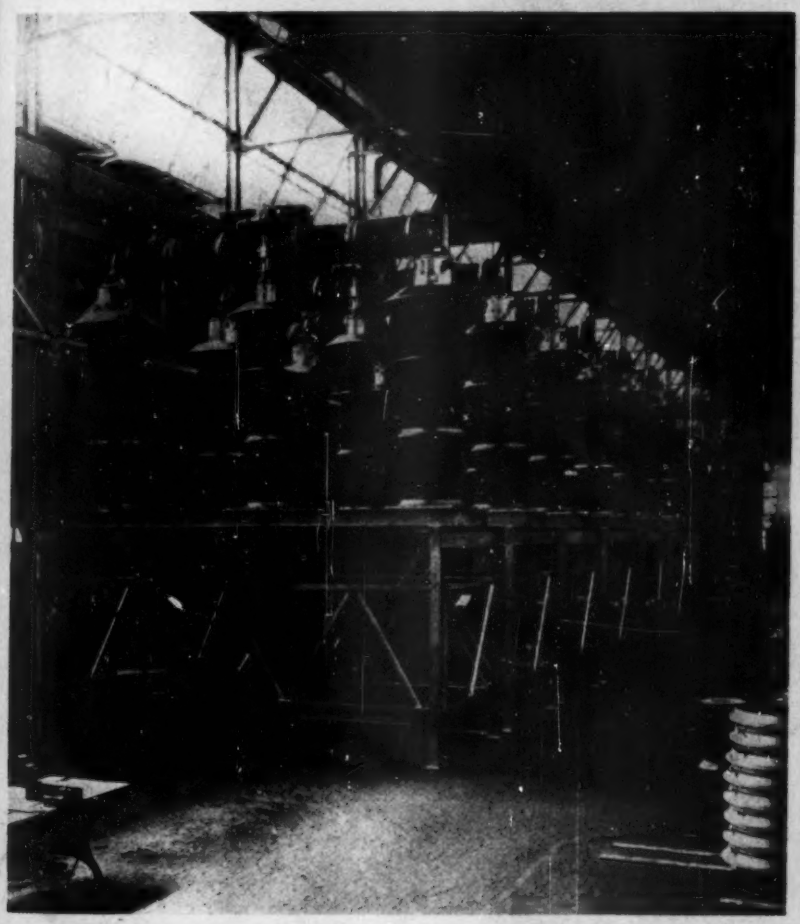
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE•



JUNE 1, 1935

Man Dwarfed By His Works

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The Weekly Summary of

Current Science

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Edited by WATSON DAVIS

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DO YOU KNOW?

A new umbrella is equipped with a hollow handle to hold neatly rolled rubbers.

Thousands of pineapple shoots from France and America are being planted in state farms in the Caucasus region.

It is estimated that there are between 100 and 150 million mature sugar maple trees in forests and woodlots of Canada.

A Russian engineer has devised a way of recording long speeches or entire concerts, not on film, but on "talking paper ribbon."

Michigan grayling were once so thick they blocked the rivers; restoring these almost extinct game fish has proved far harder than the old sport of catching them.

Sir Aurel Stein, who re-traced the march of Alexander the Great and made other notable explorations in India, has received the Gold Medal of the Society of Antiquarians of London.

The Egyptians began their day at dawn, rather than at midnight as the modern world does.

A process of extracting nicotine from tobacco dust, patented in Germany, is being put into use abroad.

During road repairs, a hoard of 77 silver coins of the fourth and fifth centuries B.C. was found recently near Tiflis.

When most productive, a queen honeybee can lay 1,500 eggs a day, and she can maintain this rate for days at a time.

Showing the long, useful life of some textiles, a New Hampshire woman took a hundred year old linen sheet to a "clothes clinic" and made a sport dress out of it.

Very early Egyptians were accused of cannibalism when bones in their cemeteries revealed what looked like gnawing marks, but later investigation showed that beetles had infested the cemeteries and caused the damage.

WITH THE SCIENCES THIS WEEK

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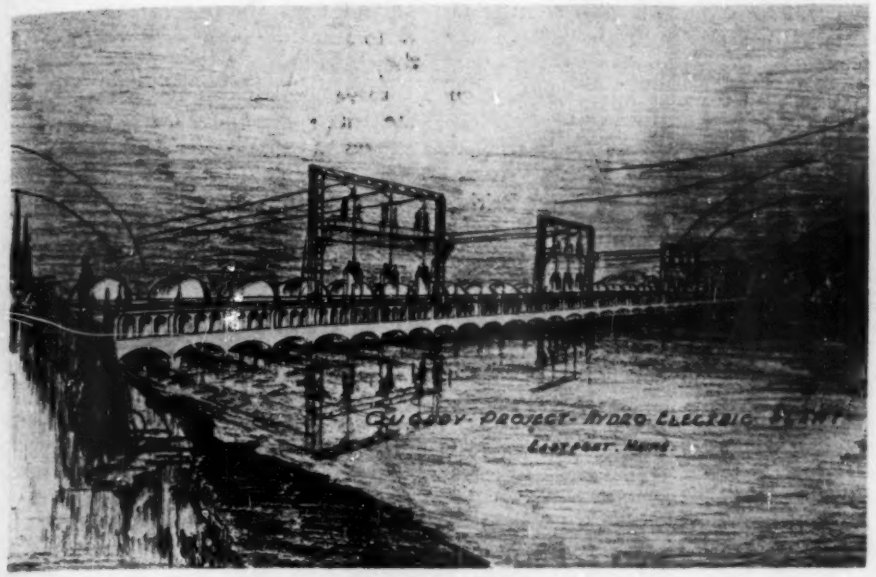

POWER FROM THE TIDES

Artist's drawing of finished tide-power plant near Eastport, Maine, for which Congress has just appropriated $10,000,000. When completed two and one half years hence it will cost $37,000,000. With five dams holding back waters of Cobscook Bay, after the phenomenal high tides in the Bay of Fundy fill it, the tide power plant will generate 200,000 horsepower. The drawing was made for the U. S. Army Engineers

ENGINEERING

Bay of Fundy's Record Tides To be Harnessed by Five Dams

Water, Double Area of Manhattan Island, 40 Square Miles, To be Stored in Huge Project to Get Power From Sea

FIVE great dams, totalling more than 14,000 feet in length, will be needed to utilize the world's record high tides of the Bay of Fundy to create electric power from the sea, Army engineers explained in discussing the new "Quoddy" project at Eastport, Maine, for which Congress has just appropriated $10,000,000 for initial operations.

The tentative figure for the final cost of the project is $37,000,000 which, it is hoped, will be completed in about two and one half years.

The five dams which will keep back the waters of Cobscook Bay, as the giant Fundy tides sweep up Passamaquoddy Bay into Cobscook, will vary in height from 35 to 140 feet. About 40 square miles of water—twice the area of Manhattan Island—will be stored in Cobscook Bay. All five dams will be well within the international boundary, thus making the entire Quoddy project an American undertaking.

Capt. Hugh J. Casey, U. S. Army Engineer, explained that generators totaling 200,000 horsepower will be installed at these five major dams to generate power when the waters of Passamaquoddy Bay rise five feet above those in Cobscook Bay. From this minimum working water level difference the generators will function until the water reaches its peak difference of about 20 feet and then returns to the five-foot difference level.

Below five-foot level differences the power plant will be shut down and as the Passamaquoddy waters recede the dam gates will quickly empty Cobscook Bay to its low tide level. Power, Capt. Casey explained, will be generated only on incoming tides.

Because the tides vary in time of day, with the season of the year, and are generally irregular, the Army engineers will also construct the important auxiliary project, Haycock Reservoir.

A dam 4,000 feet long and 130 feet high will hold back the waters of this reservoir, whose area is about 20 square miles.

Haycock Reservoir will be filled by pumping water from the nearby sea with power generated at the Quoddy plants thirteen miles away. Pumps rated at 180,000 horsepower will raise the water over the 130 foot dam. Thus the irregularly spaced power peaks of the Quoddy plants will, in part, store up water for further use.

Provision For Slack

As plans now stand, Capt. Casey outlined, a 60,000 horsepower generator at Haycock Reservoir will supply the power during the slack periods at the Quoddy plants. Thus a more even power generation will be possible.

Major Philip B. Fleming, U. S. Army Engineer, will be in charge of the Quoddy project having just been transferred from his post as Acting Deputy Administrator of Public Works in the P.W.A.

A general order just issued transfers Maj. Fleming and Capt. Casey, among others, to Eastport, Maine, and establishes a river and harbor district at Eastport under the supervision of the North Atlantic Division. The Eastport district, the general order states, "will include all works in the St. Croix River, Cobscook Bay, Machias River and the tributaries thereof."

The $10,000,000 now appropriated for the Quoddy project will make possible the preliminary borings and other details necessary for the construction of the great dams.

Army engineers will have to place these dams on a firm clay bottom which overlies red shale some 150 feet below water level. Coffer-dam technique will be used to build the dam foundations.

Six-Knot Tides

With a tide moving in and out at approximately 6 knots, the coffer-dam engineers will have their hands full.

Ever since a small tide mill was built on the River Tamar in England in 1790 (said to be still in operation) man has dreamed of using the ups and downs of ocean tides for generating power.

At Avonmouth Docks on the Severn River at Bristol, England, is a small 300 horsepower tide-power generator which today is the largest plant of its kind. The American Quoddy project, with its plans for 200,000 and 60,000 horsepower generators, will dwarf this British plant.

The Avonmouth plant consists of a combination hydro and steam generator.

Water stored in a reservoir flows over a water wheel at low tide and turns an electrical generator, as in the ordinary hydroelectric plant.

The novel trick is to store up the excess power created during the peak production by having the water-wheel shaft revolve against a brake band against which water flows. The heat of friction is sufficient to raise the water temperature to 390 degrees Fahrenheit, corresponding to 200 pounds gage pressure of steam.

Passing to a storage tank, this hot water is saved until the power demands exceed the power available from the hydroelectric generator. Then some of the super-heated water is released from the tank and turns to steam. This steam passes through a common steam turbine and drives an electric generator.

The similarity and differences between the Quoddy project and the British Avonmouth plant are seen at once. Both have a plan to store up energy for future power generation. The British, small scale plant, does it with superheated water and a steam generator. The Quoddy project accomplishes the same thing by pumping water into Haycock Reservoir, from which it can later drive hydroelectric turbines. The difference in magnitude of the two projects accounts for the difference in technique.

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PSYCHIATRY

Common Disease of the Mind Affects the Body Also

A CLUE indicating that the mental derangement schizophrenia is a disease of the body as well as the mind was made known to the American Psychiatric Association by Drs. Isidore Finkelman and W. Mary Stephens, of Elgin, Ill., State Hospital.

Sufferers from this, the most common of all mental diseases, do not regain their physical warmth after chilling as readily as do normal persons.

Given a cold water plunge, the body's ability to warm itself automatically was measured by the amount of oxygen burned in the body shortly afterwards. Healthy persons recovering from such a chilling consumed 41 per cent. more oxygen than usual, while schizophrenics consumed only 21 per cent. more.

For persons who had had so-called sleeping sickness or encephalitis, a mental disease known to have a physical basis in an inflammation of the brain, the increase in oxygen consumption after chilling is even less than for schizophrenics, only 14 per cent.

In the case of the sleeping sickness victims, the disturbance of the heat-regulating mechanism is known to be related to a diseased condition of the nerves. Experiments are now being made to find out where the similar disturbance of the schizophrenic patients is centered.

The evidence points to a physiologic disturbance in the hypothalmic region of the brain, the investigators believe.

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MEDICINE

Scientists Find Fresh Lead On Morphine Addiction Problem

BECAUSE it markedly increases the processes of oxidation in living tissues, dinitrophenol has given scientists a fresh lead on the problem of narcotic drug addiction by showing that dogs which have developed tolerance for morphine handle or maybe even store the latter drug in their bodies in a different way from dogs which have no tolerance for the narcotic. What this difference is will, when discovered, probably give significant information about the question of tolerance and addiction to morphine.

The research which brought to light this fresh lead was done by Drs. O. H. Plant and D. Slaughter of the State University of Iowa and reported to the American Society for Pharmacology and Experimental Therapeutics. The difference in the way morphine is handled by tolerant dogs may be one of the important factors in the development of tolerance, they believe.

Development of tolerance is one of the tests for judging the morphine-substitutes that are being developed in the hope of solving the narcotic drug addiction problem.

Dinitrophenol stimulates oxidation, the process by which the body burns food or other fuel to get energy. Dinitrophenol increased the burning of morphine in the bodies of dogs that had no tolerance for the latter drug, the Iowa scientists found. In morphine-tolerant dogs, the general burning or oxidation process was speeded up by dinitrophenol, but judging from the fact that there was no decrease in the amount of morphine excreted, it appears that the burning of morphine itself was not affected by dinitrophenol in tolerant dogs. Consequently the scientists assume that the dog's body handles morphine differently when it has become used to the narcotic.

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ARCHAEOLOGY

Syria Enters Contest Of Cradles of Civilization

FRENCH archaeologists digging at Ras Shamra, in Syria, have uncovered signs of civilization so old as to rival the famed antiquity of Egypt and Mesopotamia. The discoveries show that Syria was a region of cradle cities as far back as 4000, possibly 5000 B.C.

Efforts of scientists to determine which is older in civilization, Egypt or Mesopotamia, will now have to be made a three-way problem to include Syria in the priority contest.

It has heretofore been supposed that the part of the Fertile Crescent where Syria lies, near the Mediterranean Sea, was lagging in progress, while settlers farther south, in Mesopotamia, along the Tigris and Euphrates Valleys, were founding Tepe Gawra, Ur, Kish, and other centers of civilized life.

The director of the French Expeditions to Ras Shamra is Prof. Claude Schaeffer, of the Museum of National Antiquities at St. Germain-en-Laye.

A great temple to Dagon, father of the god Baal, has been found in a less ancient layer of Ras Shamra. The Philistine god Dagon figured in several Bible scenes, notably in the story of Samson. It was in a temple of Dagon that the blind Samson, with a last burst of strength, pulled down the pillars, killing his Philistine captors.

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ENDOCRINOLOGY

Blood-Forming Organs May be Controlled by Pituitary Gland

Specially Prepared Extract of Pituitary Found To Produce Anemia As Well As Stomach Ulcers in Rabbits

THE PITUITARY gland, already recognized as "dictator" of most of the other glands in the body and largely the controlling factor in growth and reproduction, may have still another unsuspected role. It may control the way new blood replaces old blood in the body.

New experiments just reported in London, England, indicate that pituitary extract injections produce anemia in animals and two days later new blood cells start to appear to replace the old, depleted ones.

The pituitary gland's new role is suggested in a letter from Prof. E. C. Dodds, Director of the Courtauld Institute of Biochemistry, London, and Dr. R. L. Noble, to the editor of *Nature* (May 11). Dr. Noble is working at the Courtauld Institute with the Ellen Mickle Fellowship from Toronto University.

Last year the scientists reported their discovery that stomach ulcers can be produced experimentally by a specially prepared pituitary extract.

Now, they have found that this extract, when given to rabbits, has the additional effect of creating anemia. Marked poverty of the blood appears suddenly four or five days after the injection is given, they report. About two days later there appear cells of a certain type which show that active blood regeneration is taking place. Moreover they consider a series of experiments to have proved that the anemia can not be caused merely by loss of blood from the stomach ulcerations.

There is, therefore, a possibility that what doctors call the "reticuloendothelial system"—the system concerned with the production of new blood-cells and with the destruction of the old ones—may be to some extent controlled by the pituitary gland, the scientists point out.

"So far as we are aware, this is the first time these changes have been produced by an extract of a normal gland," they add in referring also to changes in the bone-marrow and in the secretion of bile which accompany the great change in the number of red blood-cells.

The action of the pituitary upon the blood-renewing system may not be direct. One explanation might be that the possible hormone which stimulates the flow of acid in the stomach may also stimulate the production of an enzyme that in turn acts upon the blood-renewing bone marrow.

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ARCHAEOLOGY

Cave Found in Bible City Recalls Burial of Sarah

DISCOVERY of a large burial cave in the Bible city of Mizpah, making plain the customs described in the burial of Sarah by Abraham as told in the Old Testament, is announced by Prof. William F. Badè, director of the Tell en-Nasbeh Expedition of the Pacific School of Religion.

"The very important materials from this cave are now being studied," said Prof. Badè.

From the badly crushed and disturbed skeletal remains, and the bronze and iron ornaments worn by the Bible age people, the archaeologist has learned that at least 60 individuals were buried in this cave during the early Iron Age, between 1200 and 900 B.C. The sixty or more burials indicate a long family history, it is explained, and illustrate the story of Abraham's purchase of the cave of Machpelah to bury his wife Sarah. Abraham was told, "in the choice of our sepulchres bury thy dead." In other words, certain caves were cemeteries, and the archaeologist explains that Abraham purchased a cave long used as a burial place, such as the one now found at Mizpah.

The cave at Mizpah is revealed as a burying ground used even by the people of Canaan in the early Bronze Age, 2500 to 2000 B.C., before they were expelled by invading Israelites who became new masters of the land. Pottery mingled with human bones is attributed to these Canaanites. The Israelites had cleared out the old burials, depositing them near the cave entrance.

Israelite burials in this family cave are mainly women, as shown by bracelets and anklets still encircling the bones of arms and legs. Toggle pins of bronze six inches long held in place the garments that have long since vanished.

"Iron was still a scarce and mysterious metal," Prof. Badè says, "as shown by several iron finger-rings, which must have been intended to protect the wearer against evil spirits."

The part of Mizpah, or Tell en-Nas-

CAVE TOMB OF MIZPAH

In such a cave burial place did Abraham lay his beloved Sarah to rest, scientists believe.

beh, now being excavated was occupied by the more prosperous class, it is inferred from the spaciousness of the rooms, the private cisterns belonging to some houses, the inscribed weights and the jar handles marked with ownership seals. Two of these are almost certainly those of Shebna, official scribe during the reign of King Hezekiah, Prof. Badè believes.

A dye plant, with all the heavy equipment still in place, was found in one of the larger houses.

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MEDICINE

X-Raying Pituitary and Adrenals Relieves Diabetes

ENCOURAGING results from treatment of diabetes by X-raying the pituitary and adrenal glands were reported by Drs. B. O. Barnes, W. L. Culpepper and J. H. Hutton of Chicago to the American Physiological Society.

The results were obtained with dogs that had diabetes as a result of removal of the pancreas. One of the physicians had previously found that X-ray treatment of pituitary and adrenal glands improved the condition of human patients suffering with diabetes.

The pancreas is the organ that contains the group of insulin-producing cells known as the Islands of Langerhans. When these cells are damaged by disease or removed, so that the body is deprived of its natural supply of insulin, diabetes follows. During the last few years evidence has been accumulating that some other glands besides the pancreas might be involved in diabetes.

Thyroid, pituitary and adrenal glands all seem to play a part in controlling the the body's use of sugar, which is the mechanism that goes wrong in diabetes.

Dr. Barnes reported last year that diabetes experimentally produced may be markedly improved by removing either the pituitary gland, located at the base of the brain, or part of the adrenal glands that lie atop the kidneys. Naturally, this drastic procedure cannot be used in the treatment of diabetes in human patients.

In the experiments reported, diabetes was produced by removal of the pancreas and the animals were given enough insulin to correct the diabetes. After a control period, X-ray treatments were given and it was found that with these treatments the animals needed much less insulin. The X-ray treatments apparently had an effect similar to removal of the pituitary and adrenal glands.

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OCEANOGRAPHY

Sargasso Sea Really Exists Despite Mythical Tales

SARGASSO Sea tales, about lost ships stuck forever in a thick expanse of floating weed, are myths pure and simple. But the Sargasso Sea itself really exists. Fact was separated from fable in an address given by Dr. Anselm Keefe, professor of biology at St. Norbert College, speaking under the auspices of Science Service.

The Sargasso Sea owes its existence, Dr. Keefe said, to a tremendous eddy formed by currents circling the whole North Atlantic Ocean. It is an area of relatively still water, greater than the whole Mississippi valley, larger than Alaska, and almost as large as Australia.

The mass of floating weed in the Sargasso Sea belongs to the botanical genus Sargassum, represented in Chicago by two dominating forms. The Sargassum weed is well known on the shores of the ocean, where it grows attached to the rocky bottom. To what extent the floating midocean masses are recruited from the shore growths, and how much they replace themselves by their own growth, Dr. Keefe said, are still matters of debate among botanists.

"Owing to the fact that wreckage and the usual driftwood borne by the parts of the gulf stream nearest the area gradually float off onto its surface," said Dr. Keefe, "there arose a popular belief that the surface of the Sargasso Sea was studded with derelict ships from the time of Columbus to recent years. They were all supposed to be wedged together in an impenetrable mass of sea weed, which was likewise swept into this area from the Gulf of Mexico and the Caribbean shores where it originally grew.

"This is just a tall story. Ships traveling from New York to the Guianas, to Brazil and to Africa, pass directly through the region. They report occasional large masses of floating weeds, it is true, but no more than the usual number of derelict ships and wreckage seen on the high seas.

"The behavior of the drifting sea weed or gulf weed is peculiar. At times the floating weed masses may come together to form great undulating golden-yellow prairies. One mass has been reported by actual measurement to have been seven and one-half miles long, and one-half mile wide. It was so thick that sailors who set out to capture a sleeping hawksbill turtle in the tangle, found their ship's boat inextricably caught, and they had to be hauled off by a rope from another boat."

Dr. Keefe's talk was put on the air over the network of the Columbia Broadcasting System.

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ZOOLOGY

Man-Eating Sharks Are Claiming More Victims

MAN-EATING sharks have been claiming increasing numbers of victims recently along the Australian coast, especially on the beaches of New South Wales, says Gilbert Whitley in a report to the *Victorian Naturalist*.

The number of authentic shark-attack records in the decade 1912-21 was 13; in the decade 1922-31 it jumped to 45, and in the three-year period 1932-34 there were sixteen recorded cases of shark onslaughts.

It is believed that the increasing use of bathing beaches is responsible for the rising count of tragedies. Enclosing beaches in netting or "shark fences" is strongly advised, with patrolling from airplanes or "shark towers" where such complete protection is not practicable.

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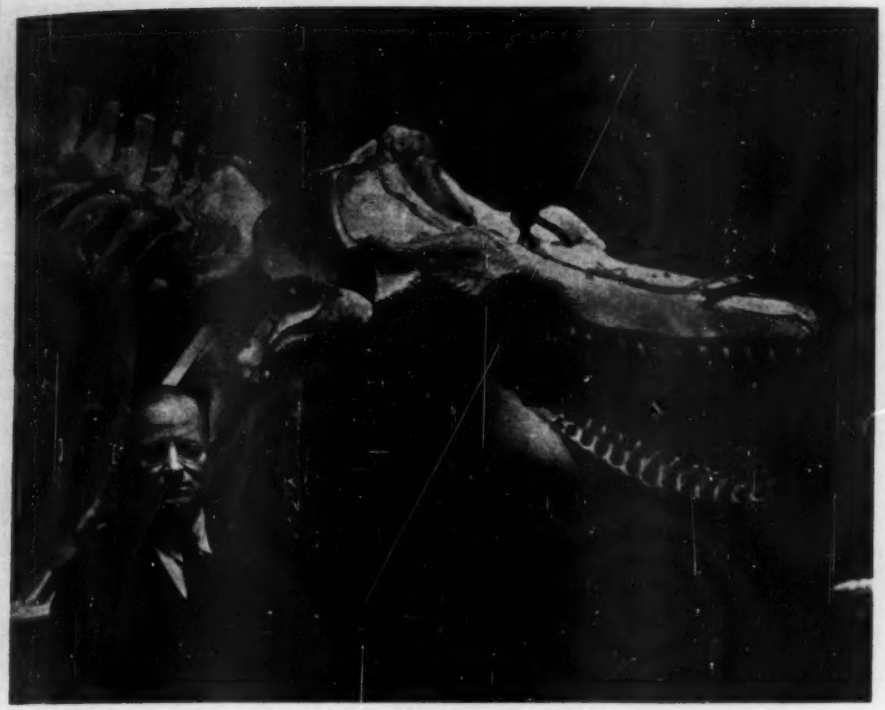
By banding young storks in the nest, European scientists are trying to learn how these birds are guided in their long migratory flights.



GANGSTER OF THE SEA

Dr. Harold E. Anthony inspects the skeleton of a killer whale just installed in the hall of ocean life in the American Museum of Natural History.

PSYCHOLOGY

To Live Long—Take Time To Think as Well as To Feel

TAKE time to think as well as to feel. This is the advice of a physician who acknowledges the importance of a patient's mental health in any battle against some of the most common causes of death.

Physicians are themselves conspicuous victims among those who succumb to the more emotional diseases. Illness in which the emotions are involved, particularly certain heart diseases, end in death much more often among physicians likely to worry about the outcome than they do among the general population.

Patients in mental hospitals, on the contrary, are generally unaware of the seriousness of their illness, and do not worry. Here are the feeble-minded who do not know what it is all about. And the mentally deteriorated who have no awareness of what is going on. These patients are much less likely to die of these emotional diseases. Each mental hospital death from the heart disease angina is balanced by 10 such deaths in the whole community and 13 among physicians.

The insane are not the ones who commit suicide. Suicide is the cause of death three times as often among physicians as among the mental patients. Perhaps the materialistic philosophy of the physicians may be the reason, Dr. Donald Gregg of Wellesley, Mass., suggested.

On the other side of the fence are certain germ diseases such as pneumonia and tuberculosis, and diseases of the blood circulating system. These causes of death are much more common among the mental patients than among the physicians or the general population. Lack of concern does not help your chances in this type of illness, it seems.

Modern life with its hurry and its economic dependence upon other people, its exciting rivalry, and its shattered faiths is a fertile soil for worry and the worry diseases, Dr. Gregg points out.

"We are not the free-swimming, self-reliant people of yesterday," he said. "We know too much about the Joneses and try to keep pace with them.

"We are depending too much on others to take care of us. With the development of the power age we are dependent on others for locomotion, food, water, clothing, light and heat. We are becoming too specialized to live and work successfully and happily on our own.

"We have learned enough to destroy or seriously to jolt many of our beliefs and faiths, and have not yet found something to take their place. Our sciences, economics, and religions are in flux.

"What is the answer? We must take time to think as well as feel, cut down our emotional load or handle it intermittently."

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ZOOLOGY

"Sea Gangster's" Skeleton Shown at American Museum

A SKELETON of a Killer Whale—the deadliest and most ferocious "gangster of the sea"—has just been placed on exhibit in the Hall of Ocean Life at the American Museum of Natural History, under the supervision of Dr. Harold E. Anthony, Curator of Mammals.

The most startling feature of this whale, which was collected some years ago by Dr. Roy Chapman Andrews off the coast of Korea, is a pair of enormous jaws that bristle with sharp, pointed teeth.

In discussing the "Killer" and its characteristics, Dr. Andrews explained that it belongs to the dolphin family, of which it is the largest member, reaching a length of from 20 to 30 feet. These brutes are found in almost every ocean of the world.

" 'Killers' will apparently eat anything that swims, and fish, birds, seals, walrus, whales, and porpoises are all equally acceptable," continued Dr. Andrews. "Their appetite is almost unbelievable. There is a record of thirteen porpoises and fourteen seals being taken from the stomach of a 21-foot specimen. The 'Killer' is the gangster of the sea and like gangsters, they hunt in packs of 20 or more. Such a gang will attack, kill and eat almost anything that swims.

"Every whaleman has stories to tell of the strength and ferocity of these sea terrors. Even huge whales will become paralyzed with fear when 'Killers' are approaching. Instead of trying to escape, they'll turn on their backs and float helplessly on the surface, waiting for destruction. They have not long to wait."

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PHYSICS

Man Excels Nature In Producing Gamma Rays

HOW MAN is exceeding nature in the artificial production of piercing gamma rays like those given off by radium and used in cancer treatment is revealed in the latest report from California Institute of Technology.

Nearly two and one half times more piercing than the natural gamma rays is the radiation liberated from the light element beryllium when it is bombarded with protons, the nuclei of hydrogen atoms, report Prof. C. C. Lauritsen and Drs. H. R. Crane, L. A. Delsasso and W. A. Fowler. (*Physical Review*, May 15).

Champion of natural gamma rays for piercing power are those from thorium C'' having energies equivalent to 2,600,000 electron volts. Prof. Lauritsen's beryllium rays have energies equal to 6,000,000 electron volts.

Record energies for artificially man-made gamma rays are those which Prof. Lauritsen obtained by bombarding lithium with protons. These gamma rays had energies equal to 16,000,000 electron volts.

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GENERAL SCIENCE

Engineer Says Science Is 20 Years Behind Economics

SCIENCE is twenty years behind economic and social development. That's the challenging thought put forward, not by an economist, but by a competent engineer and scientist, Dr. Charles F. Kettering, president of General Motors Research Corporation.

Calling research "industrial prospecting" Dr. Kettering's report to the recent New York meeting of the national engineering societies said:

"We are supposed to have advanced scientifically very much faster than we have socially or economically. I don't believe this at all. I think we are fifteen or twenty years behind our social and economic development in our scientific development. We need more research.

"I often say that research is a way of finding out what you are going to do when you can't keep on doing what you are doing now. If there had been more research with this viewpoint in mind we would not have been in our present difficulties. All that this definition means is that what we are trying to do is to develop new industries which will provide more jobs. Since there are more men than jobs at the present time, it looks like there is plenty of work left for industrial research.

"Research is industrial prospecting. The oil prospectors use every scientific means to find new paying wells. Oil is found by each one of a number of methods. My own group of men are prospecting in a different field using every possible scientific means. We believe that there are still things left to be discovered. We have only stumbled upon a few barrels of physical laws from the great pool of knowledge.

"Some day we are going to hit a gusher that will keep us industrially busy for a long time to come refining the new oil of knowledge and making it into useful new products. Men will be back to work and all of us will live a fuller, more useful life as a result."

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ARCHAEOLOGY

Mummified Human Organs Preserved in Wooden Box

MUMMIFIED organs, still scented with perfumes used by Egyptian embalmers 4,000 years ago, have been discovered in Moscow by Egyptologists who chanced to open a wooden box stored at the Museum of Imitative Arts.

The extremely rare find of human organs thus perfectly preserved is expected to shed light on the higher technique of mummification, practised on behalf of noble Egyptians. The organs, a human liver and small intestine, were found wrapped in thick linen fabric and had apparently been covered with sawdust. The box, which an expedition found in Egypt in 1912, is covered with hieroglyphics showing that it dates from the Middle Empire.

Said Prof. V. I. Avdeev, Egyptologist of the Museum:

"History knows only several cases where mummified internal organs were buried, not in canopic jars, but in wooden boxes and yet remained well preserved through thousands of years.

"Apparently the ancient Egyptians had applied in such cases special methods of mummification which were accessible only to the most distinguished nobles, in the retinues of the Egyptian emperors.

"This human being (whether man or woman has not been established) to whom the organs found in the box belonged, apparently had been one of such nobles. The hieroglyphs state that he had been 'an adornment of the Emperor.'"

Science News Letter, June 1, 1935

IN SCIE

AVIATION

Dr. Ames, Johns Hopkins, Awarded Langley Medal

DOCTOR Joseph S. Ames, veteran physicist, president of The Johns Hopkins University and chairman of the National Advisory Committee for Aeronautics, was awarded the Langley Medal for Aerodromics of the Smithsonian Institution. Chief Justice Charles E. Hughes, Chancellor of the Institution, made the presentation.

The Langley Medal, which has been given in the past to such aviation personages as Wilbur and Orville Wright, Glenn H. Curtiss, Col. Charles A. Lindbergh and Admiral Richard E. Byrd, was awarded "in recognition of the surpassing improvement of the performance, efficiency and safety of American aircraft resulting from the fundamental scientific researches conducted by the National Advisory Committee for Aeronautics under the leadership of Dr. Ames," states a resolution accompanying the medal.

Science News Letter, June 1, 1935

METEOROLOGY

Ships Asked to Radio Reports of Hurricanes

SHIPS at sea are asked by the Hydrographic Office, U. S. Navy, to radio reports of all hurricanes they may encounter during the approaching tropical-storm season, from June to November. The nearer they are to the center of the storm the more valuable their reports will be, say the officers in Washington, D. C., although they concede that "It is realized that in such a situation the master of the ship and his officers are occupied with the duties of navigating the ship." But the life- and property-saving value of such advices nevertheless make them worth the difficulty of sending.

Radio dispatches may be sent in a special code, obtainable either from the Hydrographic Office or the Weather Bureau. Shore stations "talking" with ships in the neighborhood of a hurricane are authorized to forward to the U. S. Weather Bureau, Washington, D. C., by wire collect the storm news thus received.

Science News Letter, June 1, 1935

FIELDS

MEDICINE

Claim Virus Is Cause Of Acute Rheumatism

THE CAUSE of acute rheumatic disease is probably a virus, Drs. Bernard Schlesinger and Gordon Signy of the Hospital for Sick Children and C. Russel Amies of the Lister Institute report. (*Lancet*, May 18).

Microphotographs of fluids from the chest and lungs of persons dying of acute rheumatic infection revealed elongated bodies closely resembling those previously identified as the virus bodies of chickenpox. The microphotographs were taken and described by J. E. Barnard, non-medical scientist and Fellow of the Royal Society.

Tests with the blood serum of thirty-six living patients suffering from acute rheumatic disease confirmed the belief that the bodies seen in Mr. Barnard's microphotographs are the "germs" of the disease.

The streptococcus, previously considered the microorganism that caused acute rheumatic disease, plays an important part in the development of the malady, probably by lowering the individual's resistance to the virus, the scientists believe.

Science News Letter, June 1, 1935

MEDICINE

New Electric Stethoscope Now Has "Tone Control"

AN ELECTRICAL stethoscope which enables 100 doctors and medical students to listen to heart and lung sounds was described before the Royal Society of Canada by K. A. Evelyn, University clinic, Royal Victoria Hospital, Montreal.

With a powerful microphone, and loudspeaker amplifying system attached to the ordinary stethoscope, physicians—and physicians-to-be — can learn the sound characteristics of various heart ailments.

Moreover, a system, like the tone control on a radio set, enables the doctors to separate the various sounds of the heart beat into the low and high-pitch components. This is a new aid for diagnosis, Mr. Evelyn pointed out.

The secret of success of the new stethoscope is the sound-proof box in which the microphone is placed. This cuts out all extraneous noises which might mask, when amplified, the delicate sounds of the heart beat.

Once the heart beat is turned into electrical impulses it is easily possible to pass them through a cathode ray oscillograph and obtain a continuous picture which can either be obtained visually or photographed on a motion picture film.

The idea of using amplifying systems to allow many people to study heart beats is not, in itself, new. Drs. C. J. Gamble and D. R. Replogle of Philadelphia reported a similar device to the American Medical Association in 1924.

But with the advance of radio and electrical science in the last eleven years techniques formerly not available are now possible.

Especially is this true for the tone control, or frequency sorter, which Mr. Evelyn's device employs.

Science News Letter, June 1, 1935

ZOOLOGY

Snakes Do Not Travel Fast, Experiments Prove

SNAKES do not travel fast, despite the glittering rapidity of their winding movements. The highest speed of the fastest snake measured in a series of tests made by Dr. Walter Mosauer of the University of California at Los Angeles was only 3.6 miles an hour, which is only a moderate walking pace for a man. And the snake in question, a red racer, made that record only under duress and was unable to maintain the speed for more than short distances. (*Copeia*, April 10)

Dr. Mosauer tested half-a-dozen species of snakes common in California, getting two "speeds" on each species. In one set of tests, they were permitted to set their own pace, presumably that commonly used when prowling for game. In a second series, they were pushed to the limit of which they were capable.

Speeds differed according to body build and general habits of the snakes. Sluggish, thick-bodied constrictor snakes like the gopher snake "prowled" at about a tenth of a mile an hour, and could make a high speed of 1.2 miles an hour. "Sidewinder" rattlesnakes averaged a prowling speed of a third of a mile an hour, and a racing speed of two miles an hour. The slowest of all the snakes tested was a California boa, which could not move as fast as a quarter of a mile an hour even when pushed to the limit.

Science News Letter, June 1, 1935

ZOOLOGY

No Wild Animals a Few Hundred Years Hence!

MEN alive today are witnessing one of the great changes in the world's many-million year history—the abrupt passing of a magnificent and prolific wild animal life from the earth.

"Hardly can we sense the significance of our time," declared Dr. James L. Clark, vice-director of the American Museum of Natural History, stressing the hopeless future for the world's wild life.

Speaking at the opening session of the American Association of Museums' annual meeting, Dr. Clark called upon museum workers to do everything in their power to defer the end of the game animals, and to preserve their irreplaceable specimens that will show people, in centuries to come, what the world's animals looked like.

Emphasizing that man himself is the cause of the destruction, Dr. Clark said: "As long as there is a dollar in the hide or hair, conservation becomes impossible, and wild life goes down and down, while sentimentalists rant and rave."

The wild life now vanishing will never revive itself as long as man remains and predominates on this earth, he predicted.

"Those birds and beasts which, by temperament, can associate themselves with mankind—like our domestic animals, or our Virginia deer—will alone survive," he said. "Birds of the air will perhaps last the longest, while fishes of the sea must succumb, as they are exposed to pollution, or their breeding is retarded by man's disturbance of their habitats.

"Lower forms will live indefinitely in the vastness of the deep and continue as before to evolve into other forms, but of no significant size. As their size increases, so does their mortality by the hand of man."

While believing that science is justified in taking the last animals of the vanishing species to preserve, Dr. Clark protested against museums permitting valuable bird and animal specimens to disintegrate in glass cases or museum cabinets, for want of proper mounting and preservation. Future scientists and students will want to see the real animals, and Dr. Clark declared that museums have the serious duty of providing for hundreds of years ahead, by mounting specimens the very best they can, and housing them in buildings that are dust proof and constant in temperature and moisture.

Science News Letter, June 1, 1935

ETHNOLOGY

"Deadwood Dick"—Indian Version

The Red Man's Version of the Western Thriller Depicted in Work of Art by Four Successive Authors

By DR. FRANK THONE

BANG! And another Paleface bit the dust!

Thus Deadwood-Dick-in-reverse might have been written by an Indian author, if Indians had been authors back in the days of the paper-back "thriller" that was the pre-movie ancestor of today's "Westerns." (How many a substantial American parent, who now loudly laments the debased cinema preferences of his children, used to sneak out to the barn for drafts of forbidden excitement out of those flaming red-and-yellow covers!)

Most of us retain, from those surreptitious readings in those strictly unauthentic histories of Indian wars on the Plains, a sort of hazy impression that life consisted then of furious gallopings away from overwhelming hordes of yelling, painted horsemen; of even more furious gallopings back again with the Cavalry who had come just in the nick of time to save the beleaguered outpost, not to mention the Girl (almost invariably yellow-haired); of picking off whole tribes of befeathered warriors with a miraculous trusty rifle that never missed its target; of a general super-Homeric, hyper-heroic atmosphere where life was really worth while.

The curious thing is, that the Indians seem to have had something of the same idea too. True they had little knowledge of writing and none of printing: "lead slug" to them most emphatically did not mean something in a type case.

Now In Museum

But a most vivid graphic record of the Indians' point of view, back in the exciting days when the West was "plenty wild" is now in the hands of the Smithsonian Institution at Washington, D. C. There is no writing in it, only pictures. But the pictures are worthy of any of our boyhood blood-and-thunder masterpieces both in liveliness and in crudity. And thanks to the long memories of a veteran soldier of the old West and an elderly Crow Indian, we have at least a tolerably well connected interpretation and a story of the thrilling events recorded by the four successive authors of the book.

For the heroes of this Indian picture-record of daring deeds on the Plains recorded their own stories—or at least all but the concluding chapters thereof. There is plenty of battle, murder and sudden death—including the deaths of the four horsemen of this Western Apocalypse. The man who first depicted, in childish drawings of brown and yellow and red, the outstanding facts of his violent life was killed by the second author. Author number two added some drawings of *his* high heroisms in battle and raid, until he was knocked off in his turn by author number three, who likewise drew until he died at the hands of author number four. The last recorded act in the book is depicted as a parley which will decide between peace and war. Thus on a note of dramatic suspense this saga of the West closes, and thus it was found in the grave with the bones, presumably, of its last possessor.

It is well that the Smithsonian's Bureau of American Ethnology was able to enlist the assistance of two first-class rememberers of the Old West, for the book was found under such obscure and ill-recorded circumstances that without their aid the sheets would have been largely unintelligible.

The tale of the book itself is roughly this: About twenty years ago a man named Volley Warren, with a ranch near Bozeman, Montana, was present when workmen digging a railroad cut on his land broke into an Indian grave. It is not certain any more just where his ranch was. The nearest settlement was one of the numerous places in the West dedicated to the famous explorer Lewis whom President Jefferson, somewhat anticipating Horace Greeley, told to "go West." But whether it was Lewiston, Idaho, or Lewis, Montana, or Lewistown, Montana, the surviving next of kin of Mr. Warren no longer know.

Found in Grave

The grave contained the bones of an Indian man, with some of the usual funeral gifts an Indian took with him to the Happy Hunting Grounds, and wrapped in a blanket an old Army ledger. The book was somewhat disintegrated by its long burial, so that its leaves had become loosened. But the paper was in good condition, and when the leaves were lifted apart it was found that each page bore a large drawing of an Indian, usually on horseback, shown at the climax of some bold or bloody deed.

CHANGED PLACES

Clad in a captured or stolen non-commissioned officer's coat, the mounted brave charges his dismounted enemy and parts his scalplock for him by throwing a cavalry saber.

A CAPTURE

Yellow Horse gets him some army mules. A raid on a military wagon train in 1868 might have been the occasion of this exploit.

The other objects taken from the grave became scattered and lost. The book, in time, passed into the hands of a nephew of the rancher, D. S. Warren, at that time living in Des Moines, Iowa. He in turn loaned it to Curator E. R. Harlan of the Historical, Memorial and Art Department of Iowa. Mr. Harlan sent it to the Smithsonian Institution, where photographs were made of the pages. The original was then returned to Mr. Warren.

Gen. Hugh L. Scott, veteran Indian fighter and peacemaker, who died in Washington only a year ago, examined the drawings and interpreted them as completely as he was able. After his passing, Gen. Scott's closest Indian friend, Richard Sanderville, 70-year-old Blackfoot, a leading expert in the remarkable Indian sign language, also looked them over, checking and confirming his white friend's interpretation.

The Indian's Coup

The two experts, white and red, agreed that the drawings in the book were records of the "coups," or daring exploits, perpetrated by several different Indians. A "coup" was some conspicuous feat, usually of more than ordinary hazard, by which a young warrior endeavored to enhance his prestige among his people. It might be slaying an enemy (white man or Indian of another tribe mattered not), or it might be merely getting an opponent into a helpless position and then "counting coup" on him with a riding whip or some other method of "tagging" him. It might be raiding an Army picket-line and running off the mules. It might be what we white men would regard as cold-blooded murder, or on the other hand the perpetration of some schoolboyish prank at the risk of his own life. (Sampson's Hallowe'en stunt of carrying off the Philistines' city gates could certainly have been nicked on his coup-stick, if Sampson had been a Plains Indian.) The word itself appears to be of French origin.

Increased Prestige

A young man with plenty of "coups" to his credit was usually well regarded in his village. The young squaws would look upon him with secretly favoring eyes, their fathers more openly approve him. He was in the same fortunate position as a college athlete with half-a-dozen 'varsity letters to his credit, in one of our own more cultured communities. Naturally, a record of one's "coups" was a good thing to have.

It may well be that the book came into the possession of the first diarist, a Sioux named Yellow Horse, as the result of a coup. It is not likely that he bought it; more probably he either stole it from an Army post and made a clever get-away, or took it as part of his share of the loot after a raid on an Army train, on a day when it was the Indian's turn to be in luck—for Deadwood Dick to the contrary notwithstanding, the Redskin's role was not limited to a monotonous program of dust-biting whenever the white fighter had a mind to do a little target practice. There are plenty of gray-haired retired cavalrymen who can tell you otherwise!

However he got hold of the blank ledger, Yellow Horse made proper use of it. He filled the first eight pages with crude but spirited pictorial records of his "coups." Most of these consisted of riding down white men, sometimes shooting them, sometimes merely "counting coup" on them with his quirt or his pistol. One of his victims is dressed as though he might be a preacher.

Horse Stealing

Two of Yellow Horse's "coups" involved horse-stealing raids. In one of them he shows himself pursuing the fleeing white custodians of a herd of horses and mules, ardently reckless of the shower of bullets they are sending back at him. The other is of a raid on an Army mule herd, with no white enemies in sight. Old Army records suggest that this might have happened in 1868, when a band of Indian allies under the leadership of Old-Man-Afraid-of-his-Horses did succeed in running off a big lot of mules.

But Yellow Horse, having taken the tomahawk, was slain by the tomahawk. His record breaks off abruptly, and gives place to that of another Sioux, identified as Little Bear. Little Bear not improbably killed his predecessor and calmly appropriated all his valuable "coups."

Little Bear lived to record only three "coups" to his own credit. But they were first-class "coups." The first picture shows him riding in front of a village of his tribe's enemies, the Crows, taunting them into wasting their ammunition by uselessly firing at him, while his Sioux companions, saving their shot, await the moment when they can charge with least risk to themselves and most damage to the enemy.

Little Bear's second "coup" was a more personal affair—a duel. An enemy Indian on foot has shot an arrow at him, missed, and is about to fit another to his bowstring. Little Bear kills his foe by riding him down and throwing a cavalry saber at his head.

A Corporal's Coat

This particular Indian apparently gloried in the possession a soldier's uniform and saber — battle trophies, no doubt. His dark blue coat bears a corporal's chevrons.

With his captured cavalry trappings, Little Bear seems to have become imbued with the cavalryman's headlong courage. The third of his pictured "coups" shows him riding straight at the muzzles of a battery of artillery—"charg-

ing an army, while all the world wondered." He brandishes his saber. A shell bursts beside him, filling the air with flying scraps of iron. He must have got back alive from this personally conducted charge of the Indian Light Brigade, for the picture is his own handiwork. But it is the last we see of Little Bear.

The next Indian who owned the book, inheriting it possibly by personally arranging the demise of Little Bear, was a Crow named Crane. Crane seems to have been a riotous, reckless, hellroaring fellow, always hunting trouble and having no difficulty in finding it. Yet he seems to have been able to get the better of all of his arguments (except of course the last one), for he filled many pages of the book with records of his "coups."

His record is markedly different from that of the two preceding owners of the book, in that white men never figure in his "coups"; only other Indians. Either he was on friendly terms with the whites or (much more likely) there weren't any in his neighborhood to pick a fight with. His style of drawing also was cruder and more hasty than that of either Yellow Horse or Little Bear.

The last possessor of this compositely-edited picture-record was a warrior named Howling Wolf; it is not certain what tribe claimed him. His most striking contribution is the last picture. Howling Wolf stands before an inter-tribal conference. Before him, on the ground, are a peace-pipe and a scalp. If he picks up the one, it means peace, if the other, war.

Did he pick up the peace-pipe and spend his last days quitely at home, until his time came to be taken out to the burial ground, with his precious historical picture-book laid in a blanket beside him? Or did he take the war-path, returning "upon his shield" to take his book the sooner to his last bed? No one knows.

It is in keeping, though, with the drama that strides through the whole book, that even in his last sleep he could not remain undisturbed; and that his rude resurrection should have taken the form it did. Against the railroad as against the plow, symbols of the white man's dominance, the old Indians always cherished an especial hostility. And the railroad won the fight, so ruthless that it would not even let him lie in his grave. The white man, mounted on the iron horse, at last "counted coup."

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SEISMOLOGY

Severe Earthquake in July If Apparent Rule Operates

LATE July should see, somewhere in the world, a severe earthquake with its focus or center of motion, relatively close to the surface of the earth.

That is the indication which may be inferred from a report presented before the meeting of the American Geophysical Union, by Prof. H. Landsberg of Pennsylvania State College. Prof. Landsberg did not himself venture an earthquake forecast, but he did show a remarkably close hookup between deep-focus earthquakes and shallow-focus quakes following three months later, as a rule in some remote part of the world.

The Formosa quake of the Easter week-end was a deep-focus disturbance, its center being some 35 kilometers, or 22 miles, beneath the surface of the earth. On the basis of Prof. Landsberg's correlations, a destructive shallow-focus earthquake may be expected to occur about a week before the end of July.

Prof. Landsberg also discovered a correlation between deep and shallow-focus earthquakes with a much smaller time lag—some three days before and three days after the deep-focus quake.

How the deep quakes set off the shallow ones is not understood. It is conjectured that the deep-focus disturbances set up strains which the shallow ones relieve.

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BOTANY

NATURE RAMBLINGS by Frank Thone

Poison Ivy, Poison Sumac

VACATIONISTS as a rule dread nothing more than "getting a dose of poison ivy." The unsightly blisters, the unendurable itching, the frequently prostrating allergic "shock effect," can combine to ruin a holiday as hardly any other woodland plague is able to do.

Yet it is not necessary to spend one's vacation in a constant state of "ivy jitters." For everybody except the most extremely sensitive, ivy poisoning can be both prevented and cured.

The best prevention is to keep away from it. To do so, you must know it when you see it. That is not difficult. Poison ivy is either a slender low shrub or a vine that clings tight to trees and stone walls with thousands of little roots. Its distinguishing mark is the triple leaf: "Leaflets three, let it be!" states the old rule-of-thumb rime. Its flowers are a loose cluster of inconspicuous greenish bloom; its fruits (frequently persistent from the previous winter) are pallid waxy berries. Don't touch it, and you won't get "bit." The notion that ivy can poison at a distance is simply superstition.

If you find you have touched it, wash your hands at once, and very thoroughly. Strong laundry soap is best; the alkali helps to kill the poison. A more thorough remedy, for cases that actually develop, is a 5 per cent. solution of potassium permanganate. This stains the skin brown but the stain can be removed later with a weak solution of oxalic acid, or just by thorough washing.

To prevent ivy poisoning, wet exposed parts of the skin with a five per cent. solution of ferric chloride in a half-and-half mixture of water and alcohol. Don't wipe off the solution; let it dry on the skin. This will neutralize the poison.

Some persons are apparently quite immune to poison ivy, and can handle it with no more harm than if it were lettuce. But such immunity is not a certain thing. It can be lost without warning, and once lost seemingly never returns.

Poison ivy is found in all moderately moist open woodlands in the East, and its Pacific Coast twin, poison oak, grows in similar habitats. Even more virulent than these two, though affecting fewer people, is poison sumac, a close botanical relative. This grows only in acid-water bogs or on their margins, so the average person who likes to keep his feet dry is not likely to get into it.

Poison sumac looks like ordinary sumac, except that its bark is a rather pale gray, and its fruits are in loose, drooping bunches of white berries instead of erect, stiff clusters of red-brown fuzzy "seeds." The remedies for poison ivy are good also against poison sumac.

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MEDICINE

Reducing Fatty Livers May Make Operations Safer

A DIET containing large amounts of starches and sugars may become an important part of the treatment of liver disease, particularly when the patients must undergo surgical operations. Experiments suggesting this were reported by Drs. J. L. Bollman and F. C. Mann of the Mayo Clinic at the meeting of the American Physiological Society.

A fatty liver, they found, cannot properly do its important job of protecting the body from poisons but the fat in the liver can be rapidly decreased by adding generous amounts of starches and sugar to the diet. The composition of the liver can be varied within wide limits by diet, they reported. Eating excessive amounts of fat increases the fat in the liver from a normal value of about four per cent. to twenty or thirty per cent. within three weeks. In extreme cases almost half the liver may be fat. At the same time there is a decrease in the amount of water and glycogen, which is the form in which the liver stores sugar.

Ordinarily these changes in the composition of the liver do not affect its functioning, but when dogs with fatty livers are subjected to unusual stress it becomes apparent that they are definitely handicapped. Men are probably similarly affected. Ether anethesia and surgical operations which a normal animal stands very well are poorly tolerated by animals with fatty livers and recovery is prolonged. Liver poisons such as carbon tetrachloride, chloroform and tetrachlorethane are rapidly fatal to animals with fatty livers, although the same amounts of these substances have little noticeable effect on normal animals. The greatest damage to the liver is done when the organ's glycogen content is lowest, generally at a time furthest removed from the last meal.

Dogs with fatty livers became much more intoxicated by a given amount of alcohol than dogs with normal livers. Within three weeks the amount of alcohol had to be reduced for the dogs with fatty livers because the normal harmless dose by that time was fatal. But feeding large amounts of sugar and starches reduced the fat of the liver so quickly that within one week it was normal.

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ENGINEERING

Los Angeles Transmission Line Has Fast Breakers

See Front Cover

ALONG the 287,500-volt, 270-mile transmission line from Boulder Dam to Los Angeles will be placed eight circuit breakers, each incorporating three single-pole units. Seven of the single poles are shown in the illustration on the front cover of this week's SCIENCE NEWS LETTER. Notice how small the man appears beside them.

The breakers will operate at a higher voltage than any others commercially installed; they are rated to interrupt the circuit in slightly more than one-third the time of the fastest breakers heretofore available for high voltages; and they will require less than five per cent. as much oil as would usual breakers for such voltage—1,000 instead of 23,000 gallons.

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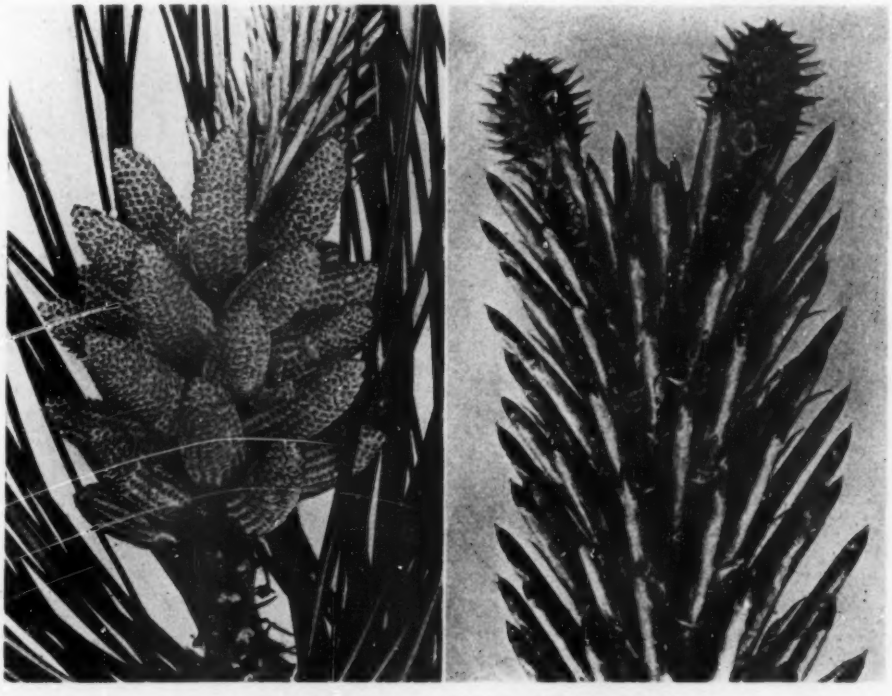

THE WIND IS THEIR MESSENGER

Pines are among the many tree genera that have no need of insects to act as auxiliaries in the important business of pollen transfer. The wind is their messenger; it carries the myriad yellow grains, each with a pair of hollow sustaining floats, away from the male or staminate cones (left), and a few of them suffice to fertilize the flowers in the female or pistillate cones (right). Lowland pines attended to this important step in the continuation of their respective species weeks ago; on the mountains and high plateaus the pollen still yellows the air. The photographs shown here are of the floral structures of the Ponderosa pine of the West, and were taken by Dr. William M. Harlow of the New York State College of Forestry.

•First Glances at New Books

Zoology

THE ALLIGATOR'S LIFE HISTORY—E. A. McIlhenny—*Christopher Publishing House,* 117 p., $2.50. The author, and his fathers before him, have lived for more than a century on an island off the Louisiana coast, in a veritable 'gator paradise. He therefore knows his reptilian neighbors as intimates, and can produce both data and lore which no mere visitor, however scientific, could ever hope to get. The fact-crammed text is leavened with dozens of splendid full-page halftone plates.

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Mineralogy

MADE OF EARTH—*Cornell University,* 31 p., 10c. Cornell Rural School Leaflet, vol. 28, no. 4. A brief but interesting and understandable account of ceramics.

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Zoology

CREATURES GREAT AND SMALL—H. Rossiter Snyder—*Loring & Mussey,* 78 p., $2. Beautiful animal photographs with an afterword telling something of the technical details concerned with making them.

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Botany

AN INTRODUCTION TO PLANT LIFE—Carl L. Wilson and Julia M. Haber—*Henry Holt,* 507 p., $3. First-year textbook for college use; special attention is paid to function, and to everyday contacts of mankind with plant life.

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Psychology

DIFFERENTIAL OCCUPATIONAL ABILITY PATTERNS—Beatrice Jeanne Dvorak—*The University of Minnesota Press,* 46 p., $1.

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Astronomy

ASTRONOMICAL GEOGRAPHY SERIES: Blank Sky Map with sheets locating stars, sun, moon and planets, 15c; Planet Plotting Chart, 15c; Sun Altitude Indicator, 25c; Equation of Time (Paper slide rule), 10c. Set., 50c. — *Geographical Press.*

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Psychology

I AM GROWING UP: BOOK I—CONDUCT; BOOK II—MANNERS—Garry C. Myers, 2 vols., each vol. 20c (single copies); 12 or more, 15c each; 100 or more, 12c each. SCHOOL, HOME AND YOU—J. W. Irwin and G. C. Myers, 160 p., single copies, 44c; 12 or more, 35c each; 100 or more, 27c each. MANNERS AND PERSONALITY IN SCHOOL AND BUSINESS—J. W. Irwin, 128 p., single copies, 40c; 12 or more, 30c; 100 or more, 25c. MENTAL HYGIENE—Lorin A. Thompson, 96 p., single copies, 30c; 12 or more, 25c; 100 or more, 20c. *School and College Service.* Little handbooks intended for school children.

Science News Letter, June 1, 1935

Education

WILLINGLY TO SCHOOL — Claire T. Zyve, with photography by Wendell MacRae—*Round Table Press,* 110 p., $3. A book of wonderful photography showing dramatically how the modern elementary school links "book learning" with real life in all its beauty. Children, as well as those who love children, will enjoy poring over this artistic volume.

Science News Letter, June 1, 1935

Astronomy

DISCOVER THE STARS—Gaylord Johnson—*Leisure League of America, Inc.,* 106 p., 25c. A simply written account of the way to learn the stars and constellations, cleverly illustrated by the author. It tells how to make your own planetarium by painting stars on the inside of an opened umbrella and do other tricks which take the mystery out of elementary astronomy.

Science News Letter, June 1, 1935

Embryology

A LABORATORY MANUAL OF VERTEBRATE EMBRYOLOGY—Hubert Vecchierello and John L. Worden—*St. Anthony Guild Press,* 92 p., $2.50. The logical order of presentation and the simple clearness of the diagrammatic illustrations mark this teaching book as the work of men who need not shame to boast scientific descent from Malpighi, and a part in a lineal tradition of investigative scholarship that goes back to Roger Bacon.

Science News Letter, June 1, 1935

Geology

THE ARCHITECTURAL, STRUCTURAL, AND MONUMENTAL STONES OF MINNESOTA—George A. Thiel and Carl E. Dutton—*University of Minnesota Press,* 169 p., 12 colored plates, $2.50. There is a good deal more in this small book than the title pretends: as much geology as is pertinent, discussions of quarrying and dressing techniques, testing methods and architectural possibilities.

Science News Letter, June 1, 1935

Anthropology—Sociology

FRONTIER FOLKWAYS—James G. Leyburn—*Yale Univ. Press.,* 291 p., $3.00. This book answers the question: What happens to men's customs and social institutions when they go to a frontier? The process, endlessly repeated by pioneers, "so long as there was land on ahead for earth-hungry men to occupy," is analyzed by study of eight frontier societies. Prof. Leyburn has chosen his examples from all parts of the world—Massachusetts Bay, New Zealand, Brazil, Australia, Java, and other places where settlers have made "new adjustments to a raw environment."

Science News Letter, June 1, 1935

Geographical Nomenclature

ARIZONA PLACE NAMES — Will C. Barnes—*Univ. of Arizona,* 503 p., $1.50. Arranged dictionary-style, this thick paper-back book contains reference information on hundreds of names met in Arizona. A sentence serves to locate and describe some; others are given almost a page. For more than 30 years, the author says, he has been gathering information from "old timers, Indians, Mexicans, cowboys, sheep-herders, historians, any and everybody who had a story to tell as to the origin and meaning of Arizona names."

Science News Letter, June 1, 1935

Medicine

CLINICAL LABORATORY METHODS AND DIAGNOSIS—R. B. H. Gradwohl—*C. V. Mosby,* 1028 p., $8.50. This detailed, comprehensive and well-illustrated text should prove extremely useful to medical student, practicing physician and laboratory technician. Not only are complete details given for performing the tests but the author also presents the underlying chemistry or physiology and the clinical interpretation of the tests. The material ranges from photomicrography and preparation of museum specimens to the Ascheim-Zondek test for pregnancy.

Science News Letter, June 1, 1935

Medicine

SEXUAL REGULATIONS AND CULTURAL BEHAVIOUR—J. D. Unwin—*Oxford University Press,* 62 p., 85c. Those thinking persons who are wondering what will become of our present civilization and in what direction we are heading will find this a stimulating discussion. The booklet is a summary of the author's larger book, Sex and Culture.

Science News Letter, June 1, 1935

Astronomy

A GUIDE TO THE CONSTELLATIONS (2nd ed.)—S. G. Barton and W. H. Barton, Jr.—*Whittlesey House,* 84 p., $3. Since the first edition of this excellent book of skymaps-with-text was published, the planet Pluto has been discovered and a number of other changes in astronomic knowledge have been wrought. These are duly taken account of in this revised edition.

Science News Letter, June 1, 1935

Engineering

SOME EFFECTS OF SOIL, WATER, AND CLIMATE UPON THE CONSTRUCTION, LIFE, AND MAINTENANCE OF HIGHWAYS—F. H. Eno—*Ohio State Engineering Experiment Station,* 143 p., 50c.

Science News Letter, June 1, 1935

Evolution

EVOLUTION—FACT OR FANCY?—Hubert Vecchierello—*St. Anthony Guild Press,* 11 p., 50c. A brief discussion in support of Theistic Evolution. The pamphlet bears the *imprimatur* of Cardinal Hayes.

Science News Letter, June 1, 1935

Physics

EFFECT OF QUALITY AND INTENSITY OF LIGHT ON VISUAL PERFORMANCE—K. Y. Tang—*Ohio State Engineering Experiment Station,* 20 p., 20c.

Science News Letter, June 1, 1935

Mathematics

VOCATIONAL MATHEMATICS IN UNIT FORM — Carl S. Hedstrom — *Edwards Bros.,* 315 p., tables, $2.25. Delightfully practical, the high school student who has a chance to use this book should see the usefulness and importance of mathematics. And that is half the battle. Lithoprinted.

Science News Letter, June 1, 1935

Biology

GENERAL BIOLOGY—H. R. Barrows—*Farrar & Rinehart,* 640 p., $3.50. A well-arranged general textbook for a one-year college course in general biology.

Science News Letter, June 1, 1935

Radio

WORLD SHORT-WAVE RADIOPHONE TRANSMITTERS—Comp. by Lawrence D. Batson—*Electrical Div., U. S. Bur. of For. and Dom. Comm.,* 138 p., 25c.

Science News Letter, June 1, 1935

Library Science

LIVING WITH BOOKS — Helen E. Haines — *Columbia University Press,* 519 p., $4. Books are here approached in much the same fashion that a biologist approaches an organism: classification, form, function, relationships to other books, history and evolution. The general reader will find in this work paths to a better appreciation of what he reads; to the librarian it will probably become a veritable evangel.

Science News Letter, June 1, 1935

Bacteriology

BACTERIOLOGY OF THE HOME—Ava L. Johnson—*Manual Arts Press,* 167 p., $2.25. An approach to the problems of bacteriology in terms of everyday life: dust, dishwashing, bread and meat, vegetables and milk. It is written in terms the average housekeeper can understand, and enlivened with illustrations produced by experiments that are also everyday experiences in a house.

Science News Letter, June 1, 1935

Physics

HEAT—*Cornell University,* 31 p., 10c. Cornell Rural School Leaflet, vol. 28, no. 3. A simply written explanation of the more practical applications of heat: How to make things warm and cold; how heat controls weather, and the relation of heat to both plant and animal life.

Science News Letter, June 1, 1935

Astronomy

A DESCRIPTIVE STUDY OF THE SPECTRA OF THE A-TYPE STARS—William W. Morgan—*University of Chicago,* 123 p., $1.50. Detailed tabular listings, with brief text discussion. Of interest to professional astronomers.

Science News Letter, June 1, 1935

Geology

INTRODUCTION TO GEOLOGY—E. B. Branson and W. A. Tarr—*McGraw-Hill,* 478 p., $3.75. A well-arranged first year text for college use.

Science News Letter, June 1, 1935

Agricultural Economics

ECONOMICS OF THE FARM BUSINESS—Theodor Brinkmann; tr. by Elizabeth T. Benedict, H. H. Stippler and M. R. Benedict—*University of California Press,* 172 p., $2. A modern classic in agricultural economics, made available to students who might have difficulty with the original German version. In a day when agricultural economics are a major factor in politics and even religion, this book is sure of an attentive audience.

Science News Letter, June 1, 1935

General Science

PROCEEDINGS OF THE FIFTH PACIFIC SCIENCE CONGRESS (under auspices of the National Research Council of Canada), *Univ. of Toronto,* in five vols., 4227 p., $20 (single vols. $5 each, post paid). A complete account of one of the most outstanding international scientific meetings held in recent years. All papers are printed in full, with stenographic reports of comments during the discussion periods, and there are many illustrations, charts and tables. While major attention is directed to scientific problems, pure and applied, arising in the Pacific area, the papers presented are not limited to such discussion, but are world-ranging in scope.

Science News Letter, June 1, 1935

Ornithology

NATURAL HISTORY PICTURES—UNIT THREE: BIRD STUDIES—Gayle Pickwell—*Publishers Distributing Service,* 48 pictures and 71 p. of text, $6. Uniform with the series reviewed in SNL, May 25, and of the same high value as teaching material.

Science News Letter, June 1, 1935

Biology

ADVENTURES IN THINKING: A WORKBOOK IN BIOLOGY—Helen Gardner Mank—*Benj. H. Sanborn,* 352 p., $1. A workbook in biology for high schools.

Science News Letter, June 1, 1935

Genetics

THE PRINCIPLES OF HEREDITY—Laurence H. Snyder—*D. C. Heath,* 398 p., $3. A modern, well-worked out general text, good also as a one-volume reference book.

Science News Letter, June 1, 1935

Genetics

THE GENETICS OF GARDEN PLANTS—M. B. Crane and W. J. C. Lawrence—*Macmillan,* 252 p., $3. Products of the garden are usually judged as individuals, and with a far more critical eye than is turned on products of the field. Size, shape, color, odor and flavor of the individual specimen count heavily in determining marketability. A book that will help horticulturists to approach their breeding problems more practicably and with a closer application of modern scientific method, as this work does, will doubtless be accorded a good welcome.

Science News Letter, June 1, 1935